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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,472	03/30/2001	Thomas E. Willis	42390.P8930	6094

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Jordan Michael Becker
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

PORTKA, GARY J

ART UNIT

PAPER NUMBER

2188

DATE MAILED: 04/03/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.
09/823,472

Applicant(s)
Willis et al.

Examiner
Gary J. Portka

Art Unit
2188

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 27, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

1. Claim 36 has been amended, and claims 37-46 have been added by Applicant. Claims 1-46 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1-15, and 19-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshioka et al., U.S. Patent 6,138,226.

4. As to claim 1-3, 5-10, 12, and 31-34 Yoshioka discloses a method, executable code, and processor for transparently sharing virtual address translations, by accessing a translation and identifying if it is sharable (see Abstract, Figures 1, 5, and 7-10, column 6 lines 5-43, column 10 lines 26-44, column 11 lines 49-63, and column 13 lines 6-18; the shared flag SH identifies if the translation is sharable, and this procedure is transparent to the OS to the extent claimed, since as seen in Figure 1, in both the logical cache 10 and in the TLB, a shared flag indicates if the translation may

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be shared without communicating this to the OS, that is, the OS only inputs the Logical Address b and receives only an indication of cache hit/miss and if a hit the physical address PA(a)).

5. As to claims 13, 15, 19-22, and 28-30 Yoshioka discloses processors and logical processors as recited (see Figures 3, 5, and 7).

6. As to claim 14, multiple logical processors on the same die is disclosed since a single processor running multiple processes is contemplated.

7. As to claims 24-27, 35-36, 40, and 42-46, Yoshioka discloses the TLB stores the indication (see Figure 8).

8. As to claims 4, 11, 37-38, and 41, the ASID may be considered a part of the sharing indication, and identifies logical processes sharing the translation.

9. As to claims 23 and 39, any request via a second process for access to the shared translation may be considered the second recited translation (compared with first at VA(b) \neq VA(a), Figure 1).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al., U.S. Patent 6,138,226.

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12. As to claim 16-18, Yoshioka does not specifically disclose the translation provides access to a shared cache. The cache 10 therein is a logical cache and is accessed by logical address, before translation. However, the use of multiple levels of caching in memory systems was notoriously well known in the art; looking at Figure 7 an artisan would have known the performance benefit possible by adding a cache between microcomputer 1 and bus 3, and/or between bus 3 and memory 2. In either case, this would be a physically addressed cache and therefore would utilize the translation as recited. Thus it would have been obvious to use the translation to provide access to a shared cache, because this would have been a result of adding another level of cache as described, which was well known in the art as a means of improving performance.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No.

5,754,818 Sharing TLB entries using process (context) IDs.

14. Any inquiry concerning this communication from the examiner should be directed to Gary J. Portka at telephone number (703) 305-4033. The examiner can normally be reached on weekdays from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Do Yoo, can be reached at (703) 308-4908.

Any response to this action should be mailed to (or faxed as provided below):

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Commissioner of Patents and Trademarks
Washington, D.C. 20231

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Fourth Floor (Receptionist).

The fax phone number for the organization where this application or proceeding is assigned
are as follows:

(703) 746-7238 (After Final communications)

(703) 746-7239 (Official communications)

(703) 746-7240 (Status inquiries, draft communications)

Any inquiry of a general nature relating to this application or proceeding should be directed
to the Group receptionist, whose telephone number is (703) 305-3900.

Gary J. Portka
Primary Examiner
April 1, 2003

